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ICMR i-DRONE Drones Cut TB Diagnosis Time and Cost in Telangana

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ICMR i-DRONE Drones Cut TB Diagnosis Time and Cost in Telangana

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*An study, conducted with **AIIMS Bibinagar** and the District TB Office under the **National TB Elimination Programme (NTEP)** in **Yadadri-Bhuvanagiri district, Telangana**, has shown that drone transport of tuberculosis sputum samples cut the median diagnosis turnaround from about **15 days** to **5 days**, while dramatically reducing patient out-of-pocket costs. The findings signal a scalable model for last-mile healthcare logistics in India's fight to eliminate TB.*

FROM 15 DAYS TO 5: WHAT THE STUDY FOUND

Diagnostic delay is one of the biggest obstacles in TB control. In hard-to-reach rural blocks, sputum samples travel slowly to testing labs, delaying treatment and prolonging transmission. The i-DRONE study set out to test whether aerial logistics could compress this timeline.

PARAMETER	BEFORE DRONES	WITH DRONES
Median diagnosis turnaround	About 15 days	About 5 days
Patient out-of-pocket expense	About Rs 9,451	About Rs 91
Participants enrolled	840	840

The near-total collapse in patient cost, from thousands of rupees to under a hundred, is as significant as the time saving. It removes a major financial barrier that pushes families to abandon the diagnostic process.

The Hub-and-Spoke Network

The study built a **hub-and-spoke** logistics model to route samples efficiently across the district.

- **11 Primary Health Centres (PHCs)**

- **60 sub-centres**

- **4 TB Units** [Ujjayari Current Affairs · ujjayari.com · Free Daily Current Affairs for UPSC & State PCS](#)

Samples collected at peripheral sub-centres were ferried by drone to central testing hubs, converting a slow ground journey into a short flight.

WHAT IS ICMR I-DRONE?

i-DRONE stands for **ICMR's Drone Response and Outreach**. It was originally piloted in the **North East** and has since been used in difficult terrain across the country.

FEATURE	DETAIL
Full form	ICMR's Drone Response and Outreach
Parent body	Indian Council of Medical Research (ICMR)
Earlier use	Vaccine delivery in the North East and Andaman and Nicobar
Telangana study partners	AIIMS Bibinagar, District TB Office, NTEP

Recognised Limitations

The researchers were careful to flag operational constraints that will govern any scale-up:

- **Weather** conditions can ground flights.
- **Payload** limits cap how much can be carried per trip.
- **Training** of local health workers to handle drone logistics is essential.

WHY IT MATTERS FOR INDIA'S TB GOAL

Tuberculosis remains one of India's gravest public health challenges, and the country runs the world's largest TB elimination effort through the **NTEP**. India has set an ambitious national target to **eliminate TB** ahead of the global timeline. Faster diagnosis directly shortens the window of transmission and improves treatment outcomes.

The i-DRONE model shows that **appropriate technology** can solve a stubborn logistics problem in the health system's periphery. Drones do not replace testing labs or health workers; they connect them faster. If integrated with the NTEP's existing molecular diagnostic network, this approach could bring rapid, affordable TB diagnosis to villages that were once days away from a lab.

UPSC RELEVANCE

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GS Paper 2: Issues relating to development and management of the health sector; government policies and interventions such as the National TB Elimination Programme.

GS Paper 3: Science and technology in everyday life; indigenous technology and technology missions; application of drones in service delivery.

Prelims pointers:

- **i-DRONE** = ICMR's Drone Response and Outreach.
- Telangana study district: **Yadadri-Bhuvanagiri**; partner institute: **AIIMS Bibinagar**.
- Turnaround cut from about **15 days to 5 days**; patient cost from about **Rs 9,451 to Rs 91**.
- i-DRONE was first used for **vaccine delivery** in the North East and the Andaman and Nicobar Islands.

Mains question: Drone-based logistics can transform last-mile healthcare delivery in India. Discuss with reference to the ICMR i-DRONE tuberculosis diagnostics study and the goals of the National TB Elimination Programme.

FACTS CORNER

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i-DRONE stands for ICMR's Drone Response and Outreach, first piloted in the North East.

TB study conducted in Yadadri-Bhuvanagiri district, Telangana, with AIIMS Bibinagar under the NTEP.

Diagnosis turnaround fell from about 15 days to 5 days; 840 participants enrolled.

Patient out-of-pocket expense fell from about Rs 9,451 to Rs 91.

Network: 11 PHCs, 60 sub-centres and 4 TB Units in a hub-and-spoke model.

Limitations: weather, payload and training requirements.

Sources: *ICMR* (<https://www.icmr.gov.in>), *The Hindu* (<https://www.thehindu.com>), *PIB* (<https://pib.gov.in>)

Source: ICMR i-DRONE Drones Cut TB Diagnosis Time and Cost in Telangana — Ujiyari.com | Free UPSC & State PCS Current Affairs

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